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EXAMINER

NGUYEN, HANH N

ART UNIT

PAPER NUMBER

2616

NOTIFICATION DATE

DELIVERY MODE

09/10/2008

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

creganoa@addmg.com

Office Action Summary

Application No.

10/792,032

Applicant(s)

CATTANEO, CHIARA

Examiner

Hanh Nguyen

Art Unit

2616

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Amendment filed 5/30/08.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 25-60 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 25, 33-37, 45-49 and 57-60 is/are rejected.
- 7) ☒ Claim(s) 26-32, 38-44, 50-56 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 25, 37 and 49 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Regarding claims 25, 37 and 49, it appears that the specification does not describe "the channel estimation being based on at least one signal slice having ends temporally defined with respect to a result of the coarse synchronization".

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 25, 37 and 49 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 25, 37, 49, it is not clear on line 21 by stating "with respect to a result of the coarse synchronization" because neither the claim nor the specification describe what the result of coarse synchronization is.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 25, 33-37, 45- 49, 57- 60 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mody et al. (US Pat. 7,088,782 B2) in view of Ma et al. (US Pat. No. 7,233,625 B2), and further in view of Santhoff et al. (US pat. 7,339,883 B2).

In claim 25, 37, 49, Mody et al. discloses a method for processing frame data in signal received over a channel by a data device operating in a wireless data communications system (see fig.1, col.2, lines 15-25 and col.3, lines 35-50; receiver 10 processing time synchronization of data received over channel 19 from transmitter 8 in wireless communication 6), the incident pulsed signal carrying information within a super-frame structure, each super-frame structure comprising a plurality of frames respectively allocated for communications between specific pairs of data devices operating in the wireless data communications system and a header including at least one first training sequence, each frame comprising a preamble including at least one second training sequence (see fig.4, col.8, lines 50-60; data transmitted across channel 19 is in multiple frames 52, each frame 52 comprises a preamble 54 including a number of training symbol N) ,

the method comprising: upon reception of each super-frame structure by a data device (see col.3, lines 58-62; receiver 10 receives signal in frame 52 from transmitter 8), performing coarse synchronization with another data device acting as a coordinator device for the wireless data communications system, the coarse synchronization using the first training sequence (see col.8, lines 60-65; receiver 10 identifies the arrival of frame 52, and performs time synchronization and channel estimation. Further in fig.8, col.12, lines 52-60; the coarse synchronization circuit 61 determines the start time of each received block N (training sequence) by estimating the starting time of frame); and upon reception of each frame allocated to the data device operating within the super-frame structure, performing channel estimation using the second training sequence (see col.8, lines 60-65, receiver 10 as receiving frame 52 performs channel parameter estimation), the channel estimation being based on at least one signal slice having ends temporally defined with respect to a result of the coarse synchronization (since it is not clear whether this limitation is supported by the specification based on the rejection of 112 first & second paragraph indicated above, examiner will consider this limitation upon a response made by Applicant).

Mody et al. does not disclose the channel estimation also performing a frame synchronization and the transmission signal comprises an incident pulsed signal of an ultra wide band type.

Ma et al. discloses the channel estimation also performing a frame synchronization (fig.7 shows a receiver that receives RF signals. which is delivered to circuit 701. The circuit 701 uses the preamble of the signal to synchronize the signal and determine the

frame boundaries of the transmitted data by using sliding correlation (see col.6, lines 25-35). Further in col.7, lines 8-15, preamble is forwarded to channel estimator 709 to estimate channel response values and the distortion of received signal).

Santhoff discloses in fig.4 ultrawide band devices 60(a) -60(e) providing coarse timing reference (see col.7, lines 45-60 and col.8, lines 33-36). IN col.1, lines 32-50, the ultrawide band devices 60(a)-60(e) communicate in wireless personal area network (WPAN) and transmit ultrawideband pulses (see col.4, lines 15-30) .

Therefore, it would have been obvious to one skilled in the art to combine the teaching of channel estimation of Ma et al. and ultrawide band signal of Santhoff et al. with Mody et al. in order to perform frame synchronization in the received ultrawide band signal in the wireless personal data network. The motivation is applied to transmit signal in network comprising nodes in short distance such as piconet.

In claims 33, 45 and 57, Mody et al. discloses the first training sequence is identical to the second training sequence (see fig.4, col.8, lines 50-55; in the preamble 54 is a number of training symbols).

In claims 34, 46 and 58, Mody et al. does not disclose a method according at least one of performing the coarse synchronization and the channel estimation comprises performing a digital correlation. Note the specification on paragraph [0039] defines the the digital correlation as digital sliding correlation. Therefore, examiner uses the sliding correlation shown in Ma et al. (col.6, lines 30-36) as digital correlation since the sliding correlation of Ma et al. synchronizes signal and determines frame boundaries of

transmitted data. Therefore, it would have been obvious to use the digital sliding correlation of Ma et al. into Mody et al. to perform frame synchronization of the transmitted data. The motivation is to prevent time delay of data transmission in piconet.

In claims 35, 47 and 59, even though Mody et al. does not disclose the second training sequence is a dedicated pulse train having a pulse repetition period; and wherein the digital correlation performed during the channel estimation comprises coherent integration of successive signal slices having a same size and being mutually temporally shifted with the pulse repetition period. However, as shown in specification on paragraph [0040], applicant admits that the sliding correlation can also comprise coherent integrations which are well-known by those skilled in the art. Therefore, no prior art is needed for this limitation.

In claims 36, 48 and 60, Mody et al. does not disclose the wireless data communication comprises piconet type wireless personal area network. Santhoff et al. discloses in fig.4 ultrawide band devices 60(a) -60(e) (see col.7, lines 45-60). IN col.1, lines 32-50, the ultrawide band devices communicate in wireless personal area network (WPAN). Therefore, it would have have been obvious to one skilled in the art to use the WPAN of Santhoff into the OFDM system of Mody et al. to synchronize frame transmissions in network comprising nodes communicating in short distance such as Piconet.

Allowable Subject Matter

Claims 26-32, 38-44 and 50-56 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claims 26, 38, 50, the prior art does not disclose the channel estimation begins on a signal slice starting at an instant equal to the time of arrival of the frame increased by a difference between the first delay information and a predetermined offset, the signal slice having a size equal to a maximum channel length increased by the predetermined offset.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Lee (US Pat. 7133479);

Lehr et al. (US pat. 4005266).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hanh Nguyen whose telephone number is 571 272 3092. The examiner can normally be reached on Monday-Thursday from 8:30 to 4:30. The examiner can also be reached on alternate .

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynn Feild, can be reached on 571 272 2092. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Hanh Nguyen/

Primary Examiner, Art Unit 2616.